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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/744,420	03/06/2001	Kevin David Sanderson	I-15240	5624

7590

12/04/2003

Marshall & Melhorn  
Four SeaGate 8th Floor  
Toledo, OH 43604

EXAMINER
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FULLER, ERIC B

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 12/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/744,420

Applicant(s)

SANDERSON, KEVIN DAVID

Examiner

Eric B Fuller

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 and 34-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 and 34-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_. 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 8, 10-14, 18, 23, 34, 38 – 40, 42, and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Proscia (US 5,286,520) in view of Tracy et al. (US 4,687,560) and Florczak (US 6,268,019 B1).

Proscia teaches a method of coating a glass substrate (column 4, lines 25-30) with a fluorine-doped tungsten oxide layer for producing solar control glass. The process may occur during the well-known float glass process (column 3, lines 45-50). Proscia teaches that trifluoroacetic acid, as the fluoride source for doping, may be simultaneously added to a gas stream comprising oxygen and tungsten hexafluoride (column 3, line 33). Proscia also teaches a method of entraining the tungsten precursors where nitrogen is used as the carrier gas (column 4, lines 13-22).

The reference fails to teach the use of a tungsten chloride or an oxyhalide as the tungsten precursor. However, Tracy teaches that either tungsten chloride or tungsten oxytetrachloride may be used as the precursor in place of tungsten hexafluoride for depositing a tungsten oxide film by CVD (column 5, lines 30-40). The pressure of the process taught by Tracy is significantly lower than the atmospheric pressure CVD method taught by Proscia. Therefore, in order for one to have a reasonable expectation

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of success, the examiner points to the teachings of Florczak. Florczak teaches an atmospheric pressure CVD method for depositing metal oxide coatings to float glass by decomposing metal chlorides (abstract). From the combined teachings of Tracy and Florczak, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to utilize either tungsten oxytetrachloride or tungsten chloride as the precursor for the process taught by Proscia. By doing so, one would have a reasonable expectation of success, as Tracy teaches the equivalence of the precursors for CVD and Florczak teaches how to deposit the equivalent precursors under atmospheric conditions.

To use the substrate temperature (column 6, lines 45-50) and precursor temperature (column 4, lines 35-40) disclosed by Florczak would have been obvious as it is only teaching between the three references that discloses at what temperature the substrate and precursors should be when using metal chlorides under atmospheric pressure.

As to claim 4, the reference fails to teach that the tungsten chloride is substituted. However, Tracy does teach that the precursor is either tungsten chloride or tungsten oxyhalide (column 5, lines 15-20). It is the examiner's position that one of ordinary skill in the art would recognize that by the reference teaching that the ligand of the tungsten precursor being capable of being either chloride or an oxyhalide, that it is implied that the oxyhalide substituent and the chloride substituent behave the same way in the reaction-deposition process. Therefore, it would have been obvious that if a tungsten precursor with a chloride ligand may be used, and a tungsten precursor with an

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oxyhalide ligand may be used, then one of ordinary skill in the art would have a reasonable expectation to believe that a tungsten precursor containing chlorides and oxyhalides as its ligands would succeed in performing the process as taught. To use the substituted precursor would have been obvious at the time the invention was made to a person having ordinary skill in the art with the expectation of achieving similar results, as discussed above.

As to claim 18, Proscia fails to teach the growth rate of the deposited film. However, to achieve maximum rate without sacrificing film quality would have been obvious and within the skill of one practicing in the art, absent evidence of criticality.

Claims 1, 2, 4-9, 17-22, 34-37, and 40-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gallego et al. (US 6,048,621) in view of Tracy et al. (US 4,687,560) and Florczak (US 6,268,019 B1).

Gallego teaches a process of coating a glass substrate during the float glass production process (column 3, lines 20-25) for forming a solar control glass (abstract) by first coating it with an underlayer of silicon, carbon, and oxygen (column 3, lines 40-45). Then a layer of tungsten oxide, in a non-stoichiometric amount, is deposited on the underlayer (abstract, column 2, lines 24-33) with a thickness of 50 nm to 500 nm (column 2, lines 43-45). Then an overlayer of fluorine doped tin oxide is deposited upon that layer (column 3, lines 50-65). The reference teaches that the stoichiometry is altered by altering the flow of oxygen, but fails to teach the precursors for depositing the tungsten oxide layer.

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However, as it has been shown above, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to use the precursors of Tracy in order to produce the tungsten oxide layer of Gallego. By doing so, one would have a reasonable expectation of success in achieving the taught process, as is taught by Florczak.

As to claim 18, Gallego fails to teach the growth rate of the deposited film. However, to achieve maximum rate without sacrificing film quality would have been obvious and within the skill of one practicing in the art, absence evidence of criticality.

As to claim 43, Gallego teaches the multiple-glazing unit with the coated glass in spaced opposed relation to the glazing plane (column 4, lines 38-45).

Claims 1, 2, 5-8, 10-16, 18, 23, 34-35, 38-42, and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riaz et al. (US 5,385,751) in view of Tracy et al. (US 4,687,560) and Florczak (US 6,268,019 B1).

Riaz teaches a method of coating a glass substrate (column 3, line 23) with a fluorine-doped tungsten oxide layer. The process may occur during the well-known float glass process (column 3, line 20). Riaz teaches that trifluoroacetic acid, as the fluorine source for doping, may be simultaneously added to a gas stream that comprises tungsten alkoxides and an oxygen source (column 2, line 54). Riaz also teaches a method of entraining the tungsten precursors where nitrogen is used as the carrier gas (column 3, lines 58-68).

The reference does not explicitly teach the use of the applicant's tungsten precursor. However, as it has been shown above, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to use the precursors of Tracy in order to produce the tungsten oxide layer of Riaz. By doing so, one would have a reasonable expectation of success in achieving the taught process, as taught by Florczak.

As to claim 15, it was shown above that an entraining method was taught by Riaz for the precursors. However, the reference is silent using an entraining method for vaporizing solvents. It also has been shown above that it would have been obvious at the time the invention was made to a person having ordinary skill in the art to utilize the tungsten chloride and the ester solvent as the precursor in the process taught by Riaz. The references are silent to the vaporizing the solvent. However, as a simple method of vaporizing has been taught for the other species, it is the examiner's position that one of ordinary skill in the art would recognize that vaporizing the ester by the same entraining method as the precursors, would result in satisfactory results. Therefore, to do so would have been obvious at the time the invention was made to a person having ordinary skill in the art with the expectation of achieving similar results.

As to claims 13, 16, 38, and 39, to use the substrate temperature (column 6, lines 45-50) and precursor temperature (column 4, lines 35-40) disclosed by Florczak would have been obvious as it is only teaching between the three references that discloses at what temperature the substrate and precursors should be when using metal chlorides under atmospheric pressure.

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As to claim 18, Riaz fails to teach the growth rate of the deposited film.

However, to achieve maximum rate without sacrificing film quality would have been obvious and within the skill of one practicing in the art, absence evidence of criticality.

Claims 1, 2, 8, 10-14, 17, 19, 34, 38-40, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Florczak (US 6,268,019 B1) in view of Proscia et al. (US 5,324,537), or vice versa.

Florczak teaches a method of coating a glass substrate with a fluorine-doped metal oxide layer (column 6, lines 55-65). The process may occur during the well-known float glass process (column 4, lines 50-29). Florczak teaches trifluoroacetic acid as the fluorine source for doping (column 4, lines 47-51). Oxygen sources are taught (column 4, lines 30-39). Substrate temperatures are taught (column 6, lines 45-50). The reference fails to explicitly teach depositing tungsten oxides.

Proscia teaches a method of forming fluorine doped tungsten oxide films that are applied to glass substrates during the float glass production process (column 2, lines 30-35). By doing so, a suitable solar control glass is formed (column 1, lines 25-31). A temperature range for the substrate is taught (column 3, lines 1-4). The precursor for the fluorine doping is taught (column 3, lines 33-42). The reference is silent to the precursors of the tungsten oxide film.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to deposit tungsten oxide by the method taught by



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Florczak, i.e. using tungsten as the metal in the metal chloride taught. By doing so, one would reap the benefits of achieving suitable solar control, as taught by Proscia.

It also would have been obvious to use the metal chloride precursors taught by Florczak in the process taught by Proscia. By doing so, one would have a reasonable expectation of success, as Proscia teaches a process, but is silent to the precursors, and Florczak teaches precursors to a similar process.

### ***Response to Arguments***

All arguments made by the applicant, in view of the amended claims, have been found persuasive. In response, the examiner has now cited Florczak in lieu of the limitations added by the amendment. Applicant's arguments are moot in view of the new grounds of rejection.

### ***Conclusion***

Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

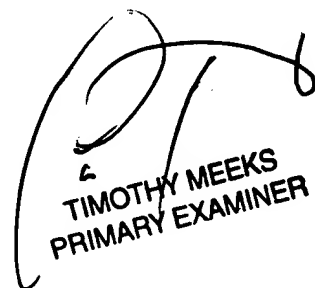
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric B Fuller whose telephone number is (703) 308-6544. The examiner can normally be reached on Mondays through Thursdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck, can be reached at (703) 308-2333. The fax phone number for the organization where this application or proceeding is assigned is 703 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



EBF



TIMOTHY MEEKS  
PRIMARY EXAMINER